PLANNING & ZONING COMMISSION

AGENDA REQUEST

AGENDA OF:	**11/13/07**	**AGENDA REQUEST NO:**	**IV A**
INITIATED BY:	**LISA KOCICH-MEYER, SENIOR PLANNER**	**RESPONSIBLE DEPARTMENT:**	**UTILITIES**
PRESENTED BY:	**SABINE SOMERS-KUENZEL AND SUELLEN STAGGS**	**ASSISTANT PLANNING DIRECTOR:**	**DOUGLAS SCHOMBURG, AICP FOR DS**
		ADDITIONAL DEPARTMENT. HEAD (S):	**N/A**
SUBJECT / PROCEEDING:	**UPDATE TO THE WATER MASTER PLAN PUBLIC HEARING, CONSIDERATION AND ACTION**		
EXHIBITS:	**EXCERPTS FROM CHAPTER 5, GOAL 6 OF THE COMPREHENSIVE PLAN, EXCERPT FROM THE WATER MASTER PLAN (EXECUTIVE SUMMARY)**		

CLEARANCES		APPROVAL	
LEGAL:	**N/A**	**DIRECTOR OF PLANNING**	**SABINE SOMERS-KUENZEL, AICP FOR SK**

RECOMMENDED ACTION

Hold a Public Hearing and recommend approval of the Water Master Plan update to City Council.

EXECUTIVE SUMMARY

The Water Master Plan (WMP) is a guide for orderly and timely development of water facilities for the City and its ETJ. Last year the City retained the services of Claunch & Miller, Inc. to update the City's WMP which was last updated in 2000. The 2007 WMP update includes water demand projections for the City and its ETJ, water system hydraulic model upgrading, system flow and pressure assessments, storage requirement assessment, and 7-year, 12-year and ultimate Capital Improvement Plan (CIP). Unlike previous WMPs which were based solely on a groundwater system, this 2007 WMP Update includes our draft Groundwater Reduction Plan (GRP) that is needed to be compliant with the Fort Bend Subsidence District (FBSD) mandated reduction in groundwater withdrawals.

The development and associated water demand projections form the fundamental basis for planning water system infrastructure needs. These projections were updated with current information from the Planning and Utilities Department for 796 planning areas in the City and ETJ. Equivalent Single Family Connections (ESFC) were projected for 2006, 2013, 2018, 2025, and ultimate build-out conditions, reaching an eventual total of 87,066 ESFCs in the City and ETJ. The resulting water demand is equivalent to an average daily flow of approximately 36 million gallons per day.

The purpose of the water modeling effort was to evaluate the performance of the City's water system through a computerized hydraulic model. This model allows us to identify deficiencies in the current system and the needed improvements to support future development. The modeling results were utilized to determine long-term water supply and distribution needs. This model will also be utilized by Utilities Department as an operation supporting tool.

The WMP also addresses the issue of meeting state requirements for elevated storage and indicates that one additional elevated storage tank is recommended. The remaining storage requirement can be met through alternative means. The WMP recommends that the City file a "Plan for Alternative Pressure Maintenance Facilities" for review and approval by the TCEQ before alternatives to elevated tanks can be considered.

The GRP section of the WMP represents a road map for how the City's water system will meet the FBSD's groundwater reduction requirement. To meet the mandated 30 percent reduction in groundwater withdrawals by 2013 and 60 percent conversion by 2025, we are recommending a surface water treatment plant be constructed in two phases. In Phase I, the plant will have a capacity of 9.0 MGD and will be in operation by January 2013. In Phase II, the plant will be expanded to 22.0 MGD by 2025. The new surface water treatment plant will be located on a tract at Voss Road and Burney Road adjacent to Gannoway Lake and will utilize Oyster Creek as a raw water source. The proposed surface water transmission main network, which consists of approximately 33,730 linear feet of pipe line, are sized for ultimate development and conversion needs. The first phase will focus on transporting the treated surface water to two groundwater plants (Lakeview and First Colony). The second phase would include transmission to three more water plants (Woodchester, Austin Parkway, South Plant No. 3), as well as extension of service to New Territory's Water Plant No. 2. The projected CIP costs for water and surface water related improvements are approximately $70 million in 2007 dollars.

Following approval by P&Z, the WMP Update will be brought to Council for a Public Hearing and a 1st Read on 12/4/07, and a 2nd Read and approval on 12/18/07.

Staff requests that the Planning and Zoning Commission recommend Council approve the 2007 Update to the Water Master Plan and its inclusion in the City's Comprehensive Plan.

EXHIBITS

Excerpt from the City of Sugar Land Comprehensive Plan

Chapter 5, Goal 6: Infrastructure:

Provide and maintain quality infrastructure and facilities that ensure high levels of service while accommodating growth.

Objectives and Strategies:

I. The City should develop a useful life projection to forecast the cost and timing for rehabilitation of facilities, water, sanitary sewer, streets, and drainage systems.

V. The City should provide master planning for public infrastructure in the City and ETJ to ensure adequate facilities are in place prior to development.

A. Update master plans every 5 years.

VI. The City should continue to plan, provide, and maintain a safe, secure, efficient, and quality water supply and distribution system.

A. Update the Water Master Plan to include areas south of the Brazos River. The five-year CIP should take into consideration the City's participation with new development for new and future infrastructure.

B. Evaluate and improve the City's operations and maintenance plans for water service including emphasis on water conservation measure through education of the community.

EXECUTIVE SUMMARY

In February 2006 the City of Sugar Land retained the services of Claunch & Miller, Inc. (CMI) to update the City's Water Master Plan (WMP), and prepare the City's Groundwater Reduction Plan (GRP) as required by the Fort Bend Subsidence District's (FBSD) 2003 Regulatory Plan. This report updates previous Water Master Plan studies prepared in the years 1995 and 2000 by Lockwood, Andrews, & Newnam Engineers.

CMI coordinated with City Staff and the staff of the various utility districts within the City's ETJ on current and proposed land use and development, projected population, flow demands, water production data, water system maps, "as-built/record drawings", inventory of water plant/well facilities within the City and its ETJ area, irrigation meters, non-potable water reuse, private wells, and previous studies on future surface water system requirements. CMI also coordinated with the City's Planning Staff to estimate projected development and flow demand within the City limits and its ETJ area based on land use.

The existing 2000 Water System Maps for the City and its ETJ area were updated to reflect current conditions by including water system facilities constructed since the 2000 Water Master Plan, based on GIS data, "as-built/record drawings" and proposed plans furnished by City Staff. The Water System Maps were originally created using a MicroStation CAD platform.

The updated Water System Maps were used to prepare a water system hydraulic model for both the City limits and its ETJ areas. Current and projected demands, water production, water plant/well facilities data, irrigation meter data, and topographical data were incorporated into the model. An analysis of the modeling data was performed to provide a basis for the recommended water system improvements needed to address deficiencies in the system, as well as for the future surface water system requirements related to the GRP. Similar analyses were conducted for the projected demands in years 2013, 2018, 2025, and Ultimate Development.

Several groundwater reduction alternatives were evaluated, and the findings of previous surface water plant feasibility studies were incorporated in the preparation of the GRP. Construction cost estimates related to groundwater reduction, including treatment and distribution capital cost, operation and maintenance cost, and raw water costs were updated. Other water conservation measures were evaluated and identified in the report to assist the City in reducing groundwater withdrawal. A review of the URS Study regarding Non-Potable Water Use for irrigation purposes was conducted to determine potential system improvements and impact on the development of the City's GRP. An evaluation of the impact of using New Territory effluent as an alternative raw water source was also conducted to determine the impact it would have on the City's GRP. Water blending issues and disinfection system changes associated with the proposed surface water system were evaluated. Analyses using the hydraulic water model were made to evaluate the most efficient way to distribute the surface water supplies either by direct feed into the system piping network, or by using existing water plant sites, or a possible combination. In addition, an evaluation was performed to determine the ability of the City of Houston to meet the City's projected surface water supply needs.

Based on the evaluation, analyses, and recommendations obtained from the Water System Hydraulic Model and previous reports prepared for the City, a 5-year, a 10-year, and Ultimate CIPs were prepared to meet future demands of the projected development within the City limits and its ETJ area. The distribution system recommendations were prioritized and cost estimates for each recommendation were prepared. Development triggers were also established to assist the City in determining when a specific improvement would be necessary. The timetable for implementation of the projects was provided based on specific trigger conditions such as the number of connections, or at dates in which special regulations become effective.

SURFACE WATER IMPROVEMENTS

5-YEAR PLAN		YEAR				
Project	Description	2008	2009	2010	2011	2012
S1	**Water Transmission Mains - Phase I (SW0801)**					
	• Professional Services		$150,000	$970,420		
	• Construction				$12,164,690	
S2	**Surface Water Treatment Plant - Phase I (SW0802)**					
	• Professional Services	$1,550,000	$3,396,000		$320,000	
	• Construction				$32,968,000	
S3	**Water Plant Upgrades for Surface Water Conversion (SW1001)**					
	• Professional Services				$178,300	
	• Construction					$1,668,750
				Total		**$53,366,160**

10-YEAR PLAN		YEAR				
Project	Description	2013	2014	2015	2016	2017
S4	**System Interconnections to New Terrritory**					
	• Professional Services					$70,200
	• Construction					$378,130
S5	**Chloramine Disinfection at New Territory**					
	• Professional Services					$64,688
	• Construction					$431,250
S6	**Improvements to New Territory Water Plant No. 2**					
	• Professional Services					$48,500
	• Construction					$250,000
				Total		**$1,242,768**

ULTIMATE PLAN		YEAR				
Project	Description	2019	2020	2021	2022	2023
S7	**Surface Water Treatment Plant Phase II**					
	• Professional Services			$2,000,000	$6,100,000	$350,000
	• Construction					$54,000,000
S8	**Water Transmission Mains - Phase II**					
	• Professional Services			$150,000	$888,120	
	• Construction					$9,999,100
				Total		**$73,487,220**

WATER SYSTEM IMPROVEMENTS

5-YEAR PLAN		YEAR				
Project	Description	2008	2009	2010	2011	2012
W1	**2 MG Elevated Storage Tank (WA0503)**					
	• Professional Services	$200,000				
	• Construction			$3,515,630		
W2	**Sugar Creek Water Plant Distribution Main Upgrade (WA0504)**					
	• Professional Services	$45,000				
	• Construction		$396,000			
W3	**Alternate Disinfection (WA0605)**					
	• Professional Services		$243,000			
	• Construction			$1,614,500		
W4	**Woodchester Plant 1 MG Ground Storage Tank (WA0801)**					
	• Professional Services		$124,000			
	• Construction			$1,000,000		
W5	**University Blvd. Utility Extension - Phase 1 (WA0805)**					
	• Professional Services	$103,500				
	• Construction		$675,000			
W6	**Riverstone West Water Distribution Main (Developer)**					
	• Professional Services	$270,100				
	• Construction		$1,800,000			
W7a	**Riverstone East Water Distribution Main (Developer)**					
	• Professional Services	$301,285				
	• Construction		$2,302,109			
W7b	**Riverstone East Water Distribution Main (City)**					
	• Professional Services	$90,134				
	• Construction		$688,707			
W8	**Sugar Creek Replacement Well (WA0902)**					
	• Professional Services		$30,000		$120,000	
	• Construction					$2,000,000

5-YEAR PLAN (cont.)		YEAR				
W9	**South Plant No. 3 - Phase II (WA0903)**					
	• Professional Services		$136,500			
	• Construction			$1,165,000		
W10	**Saint Aquinas Church Water Main (Developer)**					
	• Professional Services	$64,048				
	• Construction		$248,700			
W11	**Tract 3 Water Distribution Main (Developer)**					
	• Professional Services	$148,780				
	• Construction	$1,162,500				
W12	**University Blvd. Utility Extension - Phase 2 (Developer)**					
	• Professional Services		$155,700			
	• Construction			$1,162,500		
				Total		**$19,762,692**

10-YEAR PLAN		YEAR				
Project	Description	2013	2014	2015	2016	2017
W13	**Increase Booster Pump Capacity Phase I**					
	• Professional Services			$149,200		
	• Construction				$1,500,000	
W14	**Greatwood-Riverpark Interconnect**					
	• Professional Services				$79,908	
	• Construction					$445,690
				Total		**$2,174,798**

Excerpt from the Water Master Plan (Executive Summary) Page 6 of 6

ULTIMATE PLAN		YEAR				
Project	**Description**	**2019**	**2020**	**2021**	**2022**	**2023**
W15	**Increase Booster Pump Capacity Phase II**					
	• Professional Services	$21,000				
	• Construction		$187,500			
W16	**Increase Booster Pump Capacity Phase III**					
	• Professional Services			$17,700		
	• Construction				$125,000	
W17	**New Territory Out-tract Water Main (Developer)**					
	• Professional Services	$128,296				
	• Construction		$547,400			
W18	**Water Main Loop at Northeast City Boundary (Developer)**					
	• Professional Services				$98,356	
	• Construction					$423,900
W19	**Brazos South Development (Developer)**					
	• Professional Services				$1,529,000	
	• Construction					$17,242,500
				Total		**$20,320,652**